# UNITED STATES PATENT AND TRADEMARK OFFICE

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| 09/728,908 | 12/01/2000 | Man Pak Yip | 81862P185 | 4847 |

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| 7590     09/08/2004 | EXAMINER |

Jeffrey S. Smith
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

PHAM, BRENDA H

| ART UNIT | PAPER NUMBER |
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| 2664 | |

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _30 April 2001_.

2a)☐ This action is **FINAL**.          2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) _1-30_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-30_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _01December 00_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *  c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)☒ Notice of References Cited (PTO-892)          4)☐ Interview Summary (PTO-413)
                                                       Paper No(s)/Mail Date. _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5)☐ Notice of Informal Patent Application (PTO-152)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)   6)☐ Other: _____ .
    Paper No(s)/Mail Date _____ .

## DETAILED ACTION

1.     Claims 1-30 have been examined.

### *Claim Rejections - 35 USC § 102*

2.     The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.     Claims 1-3, 5, 9-11, 13, 18-22, 24 and 28-30 are rejected under 35 U.S.C.

102(e) as being anticipated by **Aatresh (US 6,067,301)**.

        Claims 1, 9, 17, 20 and 28, Aatresh disclose a line card (42, 44, 46 or 48)

within a switching node coupled to a network, said line card comprising:

        a link interface (94 or 96, see figure 5) for transmitting communications

along a communication link (56 or 56a) within said network;

        said link interface (94) including a plurality of logical entities (100, 102,

104, 106);

        each logical entity is governed by a set of bandwidth usage rules.

**{The bandwidth usage rules is bandwidth of the output allocated amount**

**the prioritized contending queues and the bandwidth of the output is**

**consumed by the queued packets according to the allocated proportions.**

**Any unconsumed bandwidth is distributed to the queues on a priority basis such that the highest priority queue is offered the unconsumed bandwidth first and lower priority queues are offered the remaining unconsumed bandwidth in priority order. (see abstract)}.**

Claims 2, 10, 18, 21 and 29, Aatresh further teaches the line card of claim 1, wherein each logical entity is selected from the group consisting of: a buffer, a partition, a logical interface and a class of service (see figure 6).

Claims 3, 11, 19, 22 and 30, Aatresh further teaches the line card of claim 2, wherein the bandwidth usage rules include a maximum allowable bandwidth usage and a minimum bandwidth guarantee.

**{According to figure 6, each queue is allocated its respective share or percentage of the total bandwidth over a designated period of time. The maximum allowable bandwidth is the percentage of bandwidth allocated for each queue. The minimum bandwidth guarantee is each queue allowed to consume the entire bandwidth it has allocated if the queue has enough waiting packets in the queue.}**

Claim 5, 13, 24, the line card of claim 3 wherein the minimum guarantee bandwidth is the guaranteed bandwidth assigned to a given logical entity, such that the guarantee is not affected by bandwidth usage or configuration changes of any other logical entity. **{Aatresh teaches (see figure 6) the minimum**

**bandwidth guarantee assigned to each queue for transmitting await**

**packets in the queue. This assigned bandwidth is not affected by**

**bandwidth usage of any other queue.}**

4.      Claims 6-8, 14-16 and 25-27 are rejected under 35 U.S.C. 102(e) as

anticipated by **Aatresh (US 6,067,301)** or, in the alternative, under 35

U.S.C. 103(a) as obvious over **Aatresh (US 6,067,301)**.

Claims 6-8, 14-16 and 25-27, Aatresh further teach the line card of claim 3

wherein the line card can check the minimum bandwidth guarantee of each

logical entity as recited in claims 6, 14 and 25;

wherein the line card can check the maximum bandwidth as recited in

claims 7,15 and 26;

and wherein the line card can enforce the set of bandwidth usage rules

when the configuration of the logical entities changes as recited in claims 8, 16

and 27.

**{Aatresh teaches that queue manager (line card) check the minimum**

**guarantee bandwidth for each queue that required for transmitting packets**

**waiting in each queue and the maximum bandwidth allocated to each**

**queue in order to determine the unconsumed bandwidth if any in each**

**queue. The key to the queue management scheme of the invention is that**

**when a queue does not consume its entire allocated bandwidth during a**

**designated time interval, the excess bandwidth is allocated to the other**

**queues on a priority basis.}**

### *Claim Rejections - 35 USC § 103*

5.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

6.      Claims 4, 12, 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Aatresh (US 6,067,301).

Claims 4, 12 and 23, as explained in the rejection statement of claim 1, 3,

9, 11, 20 and 22 (parent claims), Aatresh discloses all the claim limitations

recited in (parent claims).

Aatresh does not teach wherein the maximum allowable bandwidth is the

maximum amount of bandwidth that any logical entity can reserve.

**{The background of the invention in Aatresh teaches referring to FIG.**

**2, four queues A, B, C and D buffer packets that are contending for the**

**same finite bandwidth output 30, To resolve contention, each queue is**

**assigned a percentage, or weight assigned as 20%, 25%, 15% and 40%**

**(columns 1, 2, lines 52-67, 1-14, respectively).  The maximum amount of**

**bandwidth that any logical entity can reserve is the percentage of**

**bandwidth assigned for each queue.}**

Therefore, it would have been obvious to those having ordinary skill in the

art at the time of the invention was made to implement the weighted fair queuing

scheme in Aatresh.  The weighted fair queuing works well for preventing the

problem of starvation that occurs in priority queuing and for establishing a

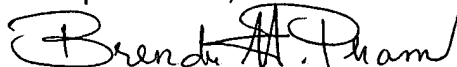maximum flow rate for each queue.


### *Conclusion*

7.      Any inquiry concerning this communication or earlier communications from
the examiner should be directed to Brenda Pham whose telephone number is
(571) 272-3135.  The examiner can normally be reached on Monday-Friday from
9:00 to 5:00.

        If attempts to reach the examiner by telephone are unsuccessful, the
examiner's supervisor, Wellington Chin, can be reached at (571) 272-3134.

        Any inquiry of a general nature or relating to the status of this application
or proceeding should be directed to the Group receptionist whose telephone
number is (571) 272-2600.

Brenda Pham
September 3, 2004